

# SEQUENCE LISTING

<110> Merck Patent GmbH

<120> DNA SEQUENCE AND PREPARATION OF GRASS POLLEN ALLERGEN Ph1 p 4

<130> MERCK-2966

<140> US 10/518,927

<141> 2004-12-23

<150> PCT/EP2003/006092

<1511> 2003-06-11

<160> 52

<170> PatentIn version 3.1

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Val Pro Pro Thr Val Thr Val Phe Lys Ile Pro Lys Lys Ala Ser Glu  
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ggc	gcc	gtg	gac	atc	atc	aac	aag	tgg	caa	gtg	gtc	gcg	ccg	cag	ctt		768
Gly	Ala	Val	Asp	Ile	Ile	Asn	Lys	Trp	Gln	Val	Val	Ala	Pro	Gln	Leu		
				245					250					255			
ccc	gcc	gac	ctc	atg	atc	cgc	atc	atc	gcg	cag	ggg	ccc	aag	gcc	acg		816
Pro	Ala	Asp	Leu	Met	Ile	Arg	Ile	Ile	Ala	Gln	Gly	Pro	Lys	Ala	Thr		

260										265					270					
ttc	gag	gcc	atg	tac	ctc	ggc	acc	tgc	aaa	acc	ctg	acg	ccg	ttg	atg	864				
Phe	Glu	Ala	Met	Tyr	Leu	Gly	Thr	Cys	Lys	Thr	Leu	Thr	Pro	Leu	Met					
275						280						285								
agc	agc	aag	ttc	ccg	gag	ctc	ggc	atg	aac	ccc	tcc	cac	tgc	aac	gag	912				
Ser	Ser	Lys	Phe	Pro	Glu	Leu	Gly	Met	Asn	Pro	Ser	His	Cys	Asn	Glu					
290						295						300								
atg	tca	tgg	atc	cag	tcc	atc	ccc	ttc	gtc	cac	ctc	ggc	cac	agg	gac	960				
Met	Ser	Trp	Ile	Gln	Ser	Ile	Pro	Phe	Val	His	Leu	Gly	His	Arg	Asp					
305			310						315			320								
gcc	ctc	gag	gac	gac	ctc	ctc	aac	cgg	aac	aac	tcc	ttc	aag	ccc	ttc	1008				
Ala	Leu	Glu	Asp	Asp	Leu	Leu	Asn	Arg	Asn	Asn	Ser	Phe	Lys	Pro	Phe					
			325						330			335								
gcc	gaa	tac	aag	tcc	gac	tac	gtc	tac	cag	ccc	ttc	ccc	aag	acc	gtc	1056				
Ala	Glu	Tyr	Lys	Ser	Asp	Tyr	Val	Tyr	Gln	Pro	Phe	Pro	Lys	Thr	Val					
			340			345						350								
tgg	gag	cag	atc	ctc	aac	acc	tgg	ctc	gtc	aag	ccc	ggc	gcc	ggg	atc	1104				
Trp	Glu	Gln	Ile	Leu	Asn	Thr	Trp	Leu	Val	Lys	Pro	Gly	Ala	Gly	Ile					
			355			360						365								
atg	atc	ttc	gac	ccc	tac	ggc	gcc	acc	atc	agc	gcc	acc	ccg	gag	tcc	1152				
Met	Ile	Phe	Asp	Pro	Tyr	Gly	Ala	Thr	Ile	Ser	Ala	Thr	Pro	Glu	Ser					
370						375						380								
gcc	acg	ccc	ttc	cct	cac	cgc	aag	ggc	gtc	ctc	ttc	aac	atc	cag	tac	1200				
Ala	Thr	Pro	Phe	Pro	His	Arg	Lys	Gly	Val	Leu	Phe	Asn	Ile	Gln	Tyr					
385			390						395			400								
gtc	aac	tac	tgg	ttc	gcc	ccg	gga	gcc	gcc	gcc	gcg	ccc	ctc	tcg	tgg	1248				
Val	Asn	Tyr	Trp	Phe	Ala	Pro	Gly	Ala	Ala	Ala	Ala	Pro	Leu	Ser	Trp					
			405			410						415								
agc	aag	gac	atc	tac	aac	tac	atg	gag	ccc	tac	gtg	agc	aag	aac	ccc	1296				
Ser	Lys	Asp	Ile	Tyr	Asn	Tyr	Met	Glu	Pro	Tyr	Val	Ser	Lys	Asn	Pro					
			420			425						430								
agg	cag	gcg	tac	gca	aac	tac	agg	gac	atc	gac	ctc	ggc	agg	aac	gag	1344				
Arg	Gln	Ala	Tyr	Ala	Asn	Tyr	Arg	Asp	Ile	Asp	Leu	Gly	Arg	Asn	Glu					
435						440						445								
gtg	gtc	aac	gac	gtc	tcc	acc	tac	gcc	agc	ggc	aag	gtc	tgg	ggc	cag	1392				
Val	Val	Asn	Asp	Val	Ser	Thr	Tyr	Ala	Ser	Gly	Lys	Val	Trp	Gly	Gln					
450						455						460								
aaa	tac	ttc	aag	ggc	aac	ttc	gag	agg	ctc	gcc	att	acc	aag	ggc	aag	1440				
Lys	Tyr	Phe	Lys	Gly	Asn	Phe	Glu	Arg	Leu	Ala	Ile	Thr	Lys	Gly	Lys					
465			470						475			480								
gtc	gat	cct	acc	gac	tac	ttc	agg	aac	gag	cag	agc	atc	ccg	ccg	ctc	1488				
Val	Asp	Pro	Thr	Asp	Tyr	Phe	Arg	Asn	Glu	Gln	Ser	Ile	Pro	Pro	Leu					
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 ile Lys Lys Tyr  
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Lys Glu Ile Pro Pro Arg Leu Leu Tyr Ala Lys Ser Ser Pro Ala Tyr  
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 35 40 45

Asp Asn Val Lys Pro Leu Tyr Ile Ile Thr Pro Thr Asn Val Ser His  
 50 55 60

Ile Gln Ser Ala Val Val Cys Gly Arg Arg His Ser Val Arg Ile Arg  
 65 70 75 80

Val Arg Ser Gly Gly His Asp Tyr Glu Gly Leu Ser Tyr Arg Ser Leu  
 85 90 95

Gln Pro Glu Thr Phe Ala Val Val Asp Leu Asn Lys Met Arg Ala Val  
 100 105 110

Trp Val Asp Gly Lys Ala Arg Thr Ala Trp Val Asp Ser Gly Ala Gln  
 115 120 125

Leu Gly Glu Leu Tyr Tyr Ala Ile Tyr Lys Ala Ser Pro Thr Leu Ala  
 130 135 140

Phe Pro Ala Gly Val Cys Pro Thr Ile Gly Val Gly Gly Asn Phe Ala  
 145 150 155 160

Gly Gly Gly Phe Gly Met Leu Leu Arg Lys Tyr Gly Ile Ala Ala Glu  
 165 170 175

Asn Val Ile Asp Val Lys Leu Val Asp Ala Asn Gly Lys Leu His Asp  
180 185 190

Lys Lys Ser Met Gly Asp Asp His Phe Trp Ala Val Arg Gly Gly Gly  
195 200 205

Gly Glu Ser Phe Gly Ile Val Val Ala Trp Gln Val Lys Leu Leu Pro  
210 215 220

Val Pro Pro Thr Val Thr Ile Phe Lys Ile Ser Lys Thr Val Ser Glu  
225 230 235 240

Gly Ala Val Asp Ile Ile Asn Lys Trp Gln Val Val Ala Pro Gln Leu  
245 250 255

Pro Ala Asp Leu Met Ile Arg Ile Ile Ala Gln Gly Pro Lys Ala Thr  
260 265 270

Phe Glu Ala Met Tyr Leu Gly Thr Cys Lys Thr Leu Thr Pro Leu Met  
275 280 285

Ser Ser Lys Phe Pro Glu Leu Gly Met Asn Pro Ser His Cys Asn Glu  
290 295 300

Met Ser Trp Ile Gln Ser Ile Pro Phe Val His Leu Gly His Arg Asp  
305 310 315 320

Ala Leu Glu Asp Asp Leu Leu Asn Arg Asn Asn Ser Phe Lys Pro Phe  
325 330 335

Ala Glu Tyr Lys Ser Asp Tyr Val Tyr Gln Pro Phe Pro Lys Thr Val  
340 345 350

Trp Glu Gln Ile Leu Asn Thr Trp Leu Val Lys Pro Gly Ala Gly Ile  
355 360 365

Met Ile Phe Asp Pro Tyr Gly Ala Thr Ile Ser Ala Thr Pro Glu Ser  
370 375 380

Ala Thr Pro Phe Pro His Arg Lys Gly Val Leu Phe Asn Ile Gln Tyr  
385 390 395 400

Val Asn Tyr Trp Phe Ala Pro Gly Ala Ala Ala Ala Pro Leu Ser Trp

405

410

415

Ser Lys Asp Ile Tyr Asn Tyr Met Glu Pro Tyr Val Ser Lys Asn Pro  
420 425 430

Arg Gln Ala Tyr Ala Asn Tyr Arg Asp Ile Asp Leu Gly Arg Asn Glu  
435 440 445

Val Val Asn Asp Val Ser Thr Tyr Ala Ser Gly Lys Val Trp Gly Gln  
450 455 460

Lys Tyr Phe Lys Gly Asn Phe Glu Arg Leu Ala Ile Thr Lys Gly Lys  
465 470 475 480

Val Asp Pro Thr Asp Tyr Phe Arg Asn Glu Gln Ser Ile Pro Pro Leu  
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Ile Lys Lys Tyr  
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Asp Ile Tyr Asn Tyr Met Glu Pro Tyr Val Ser Lys  
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Val Asp Pro Thr Asp Tyr Phe Gly Asn Glu Gln  
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Ala Arg Thr Ala Trp Val Asp Ser Gly Ala Gln Leu Gly Glu Leu Ser  
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Tyr

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<213> Dactylus glomerata

<400> 13

Gly Val Leu Phe Asn Ile Gln Tyr Val Asn Tyr Trp Phe Ala Pro  
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<210> 14  
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<400> 14

Lys Thr Val Lys Pro Leu Tyr Ile Ile Thr Pro  
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<210> 15  
<211> 22  
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Gln Leu Tyr Leu Lys Ser  
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<210> 16  
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<212> PRT  
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<400> 16

Thr Val Lys Pro Leu Tyr Ile Ile Thr Pro Ile Thr Ala Ala Met Ile  
1 5 10 15

<210> 17  
<211> 24  
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<400> 17

Leu Arg Lys Tyr Gly Thr Ala Ala Asp Asn Val Ile Asp Ala Lys Val  
1 5 10 15

Val Asp Ala Gln Gly Arg Leu Leu  
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<400> 18

Lys Trp Gln Thr Val Ala Pro Ala Leu Pro Asp Pro Asn Met  
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<210> 19

<211> 15

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Val Thr Trp Ile Glu Ser Val Pro Tyr Ile Pro Met Gly Asp Lys  
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Gly Lys Tyr

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<211> 23

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Glu Pro Ile Pro Lys Lys Ser  
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<210> 22

<211> 13

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<213> Cynodon dactylon

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Tyr Arg Asp Leu Asp Leu Gly Val Asn Gln Val Val Gly  
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<210> 23

<211> 15

<212> PRT

<213> Cynodon dactylon

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Ser Ala Thr Pro Pro Thr His Arg Ser Gly Val Leu Phe Asn Ile  
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<210> 24

<211> 36

<212> PRT

<213> Cynodon dactylon

<400> 24

Ala Ala Ala Ala Leu Pro Thr Gln Val Thr Arg Asp Ile Tyr Ala Phe  
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Met Thr Pro Tyr Val Ser Lys Asn Pro Arg Gln Ala Tyr Val Asn Tyr  
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Arg Asp Leu Asp  
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<211> 149

<212> DNA

<213> Phleum pratense

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aaggaccccg tccaggccta cgccaacta 149

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<211> 299

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<213> Phleum pratense

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actacatgga gccatacgtg agcaagaacc ccaggcaggc ctacgccaac tacagggaca 120  
 tcgacctcgg gaggaacgag gtggtgaacg acgtctccac cttcagcagc ggtttggtgt 180  
 ggggccagaa atacttcaag ggcaacttcc agaggctcgc catcaccaag ggcaaggtgg 240  
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Lys Glu Ile Pro Pro Arg Leu Leu Tyr Ala Lys Ser Ser Pro Ala Tyr  
 20 25 30

Pro

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<400> 28

Ser Ala Thr Pro Phe Xaa His Arg Lys Gly Val Leu Phe Asn Ile Gln  
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Tyr Val

<210> 29

<211> 10  
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Gly Leu Xaa Tyr Arg Xaa Leu Xaa Pro Glu  
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<210> 31  
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<400> 31

Ala Pro Glu Gly Ala Val Asp Ile Ile  
1 5

<210> 32  
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<400> 32

Met Glu Pro Tyr Val Ser Ile Asn Pro Val Gln Ala Tyr Ala Asn Tyr  
1 5 10 15

<210> 33  
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<212> PRT  
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<222> (14)..(14)  
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Tyr Phe Pro Pro Pro Ala Ala Lys Glu Asp Phe Leu Gly Xaa Leu  
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<210> 34  
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<400> 34

Leu Tyr Ala Lys Ser Ser Pro Ala Tyr Pro  
1 5 10

<210> 35  
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Tyr Phe Pro Pro Pro Ala Ala Lys Glu Asp Phe Leu Gly Xaa Leu Val  
1 5 10 15

Lys Glu Ile Pro Pro Arg Leu Leu Tyr Ala Lys Ser Ser Pro Ala Tyr  
20 25 30

Pro

<210> 36  
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Tyr Phe Pro Pro Pro Ala Ala Lys Glu Asp Phe Leu Gly Xaa Leu Val  
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Lys Glu Pro Pro Arg Leu Leu Tyr Ala Lys Ser Ser Pro  
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<210> 37  
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<210> 38  
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1 5 10 15

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<223> undetermined amino acid

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<210> 40

<211> 11

<212> PRT

<213> Phleum pratense

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<222> (4)..(5)

<223> undetermined amino acid

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<210> 41

<211> 18

<212> PRT

<213> Phleum pratense

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<222> (6)..(6)

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Tyr Val

<210> 42

<211> 10

<212> PRT

<213> Phleum pratense

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<222> (3)..(8)

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<400> 42

Gly Leu Xaa Tyr Arg Xaa Leu Xaa Pro Glu  
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<210> 43

<211> 12

<212> PRT

<213> Phleum pratense

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Lys Xaa Met Gly Asp Asp His Phe Xaa Ala Val Arg  
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<210> 44

<211> 9

<212> PRT

<213> Phleum pratense

<400> 44

Ala Pro Glu Gly Ala Val Asp Ile Ile  
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<210> 45

<211> 16

<212> PRT

<213> Phleum pratense

<400> 45

Met Glu Pro Tyr Val Ser Ile Asn Pro Val Gln Ala Tyr Ala Asn Tyr  
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<210> 46

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<212> DNA

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29

<210> 47  
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caymgnaarg gngtnytntt yaayatmc

28

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<220>  
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<223> 'n' means inosin

<400> 48  
tarttngcrt angcytgnac nggrtt

26

<210> 49  
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<212> DNA  
<213> Phleum pratense

<400> 49  
actactggtt cgccccggga gcc

23

<210> 50  
<211> 28  
<212> DNA  
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<400> 50  
tgaagtattt ctggccccac accaaacc

28

<210> 51  
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<212> DNA  
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<400> 51  
cccttggtga tggcgagcct ctgg

<210> 52  
<211> 23  
<212> DNA  
<213> Phleum pratense

<400> 52  
ctcagtcctg gggcagacca tcc

24

23